

DEPARTMENT OF PHYSICS

Summer 2015

June 29 – Aug 1

PHYSICS 2BL:
Physics Laboratory – Mechanics and Electrostatics

WEB PAGE <http://www-physics.ucsd.edu/students/courses/summer2015/physics2bl>

FACEBOOK <http://www.facebook.com/UcsdPhys2bl>

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1623 Mayer Hall Addition, x4-2504
Office Hrs: TBA.

COURSE SCHEDULE

Lectures: Monday, Wednesday, 11:00-11:50 am, **MANDE B-150**

Laboratory Sections (Mayer Hall Addition/Annex # 2722)

Section	Days	Time
842845 A01	Tu Th	11:00 a - 1:50 p
842846 A02	Tu Th	2:00 p - 4:50 p

TAs:

Miles Albert (mkalbert@ucsd.edu)

Giulio Meille (gmeille@ucsd.edu)

TA Coordinator: Alexander Georges (ageorges@ucsd.edu)

TEXT

J.R. Taylor, *An Introduction to Error Analysis*, 2nd Edition (University Science Books, 1997).

May need to refer to Physics textbook such as Wolfson & Pasachoff

LABORATORY REPORTS

You will turn in the finished lab report at the end of the Tuesday lab meeting.
Best if you can type it.

COURSE DESCRIPTION

In this course you will perform physics experiments and test physical models. We will explore different modes of scientific inquiry, from making observations to establishing relationships to testing and refining models of the physical world.

The principle objective of this course is for you to gain some understanding of the methods scientists use to investigate nature, and to further your understanding of mechanics and electrostatics through hands-on experience. Other important objectives of this course include learning how to keep accurate records of lab work (i.e., your lab reports), and to assess errors in measurement. Labs will not meet during first session. During session 2, experiment 1 will be started. Each lab takes two lab periods. The scientific inquiry (but not necessarily the physics) becomes increasingly complex through these first four labs. Come prepared.

COURSE FORMAT

Prerequisites:

Physics 2B or 4C.

Lectures:

Lectures will be on Monday and Wednesday 11:00 am – 11:50 am. Lecture time will be spent discussing the experiments, error analysis, and broader issues in the methods of scientific inquiry, including the interpretation and validity of scientific results. Lectures will consist of a mixture of error analysis (Taylor is very good) and some time on the physics of the individual experiments. However, you may need to review HRW for the more details.

Laboratories:

The labs for all sections are held in Mayer Hall Addition room # 2722. Descriptions of the experiments, as well as guidelines on the lab reports, will be posted on the website. The labs have a pre-lab component that is to be completed prior to the start of the lab meeting. You should read the description of the experiment and review the relevant physics in HRW before you go to lab. Generally the first day for each lab will have a Quiz and you will take data. The second day will be for the write-up and retake data if necessary.

QUIZZES

Before the start of each new lab, there will be a 15-20 minute quiz. The questions will include the purpose of the lab and selected pre-lab and homework questions. Please have the answer available for the quiz as there will not be enough time to work the problems from scratch.

HOMEWORK ASSIGNMENTS

Weekly homework assignments will be posted on the web.

COURSE GRADE

Labs 70%

Homework/Quizzes 20%

Final Extended Quiz 10%

GRADING GUIDE

The following is a guide that could be altered as the quarter proceeds

> 85 % A

> 70 % B

> 55 % C

Nevertheless if you are getting above 85 % then you will get a good grade.

ACADEMIC DISHONESTY

Please read "UCSD Policy on Integrity of Scholarship" in the UCSD General Catalog. These rules will be rigorously enforced. In other words, 'No cheating!' For the purposes of this class, cheating includes submitting another's work as your own, copying from another's homework or lab notebook or 'faking' data. Cheating also includes attempts to manipulate grades unfairly.

COURSE SCHEDULE

Section Experiment Theme of Scientific Inquiry Reading (Taylor)

1: June 30 :	Lab worksheet to get familiar with measurements, read Ch. 1 & 2 (Taylor)
2: July 2:	1: Deduce the mean density of the Earth, Ch. 3 (Taylor)
3: July 7:	1: Deduce the mean density of the Earth, Ch. 4
4: July 9:	2: Racketball Earth Creating a NEW testable model, Ch. 5
5: July 14:	2: Racketball, Ch. 8
6: July 16:	3: Shock Absorber Determine a relationship, Ch. 6
7: July 21:	3: Shock Absorber, Ch. 7
8: July 23:	4: Voltmeter Measuring values, Ch. 8
9: July 28:	4: Voltmeter, Ch. 12
10: July 30:	Final Extended Quiz (~ 1 hour)